Claims

I claim:

1. A generator and battery charging unit for use on a wheeled apparatus, comprising:

   A. a generator having a rotor and a stator, said generator comprising at least a first phase winding;

   B. a rotatable shaft extending from the rotor in communication with a wheel on the apparatus; and

   C. a charging base for holding a rechargeable battery, said charging base being electrically connected with said first phase winding,

   wherein, upon rotation of the wheel on the wheeled apparatus, the wheel is operable to transfer torque to the shaft in communication with the wheel, said shaft being rotatable with the rotor relative to the stator to produce a first winding current in the first phase winding, said first winding current being operable to charge the rechargeable battery in the charging base.

2. The generator and battery charging unit of claim 1, wherein the charging base comprises a receptacle adapted to receive one or more of the rechargeable batteries.

3. The battery and charging unit of claim 2 comprising a rectifier connected with the receptacle and the generator to supply DC power to the receptacle.

4. The generator and battery charging unit of claim 1 comprising an electrical terminal in communication with the receptacle for supplying electrical power to an accessory.

5. The battery and charging unit of claim 4 comprising a rectifier connected with the electrical terminal to supply DC power to the electrical terminal.

6. The generator and battery charging unit of claim 1, wherein the generator

comprises a second phase winding operable to produce a second winding current.

7. The generator and battery charging unit of claim 6, wherein at least one of the first and second phase windings is electrically connected with an output jack.

8. The generator and battery charging unit of claim 6, wherein the second phase winding is electrically connected with a lighting element.

9. The generator and battery charging unit of claim 8, wherein the lighting element comprises a plurality of LEDs configured for mounting on the wheeled apparatus.

10. The generator and battery unit of claim 1 wherein the generator comprises a stepper motor.

11. A skate having a boot and a plurality of wheels arranged on the boot for rolling on a surface, said skate comprising:

A. a stepper motor having a rotor and a stator, said stepper motor comprising at least a first phase winding;

B. a rotatable shaft extending from the rotor in communication with a wheel on the skate; and

C. a charging base electrically connected to said first phase winding, said charging base forming a receptacle adapted to receive a rechargeable battery,

wherein, as the skate rolls along a surface, the wheel rotates to transfer torque to the shaft, said shaft being rotatable with the rotor relative to the stator to produce a first winding current in the first phase winding that passes to the charging base to charge the battery in the receptacle.

12. The skate of claim 11, wherein the stepper motor comprises a second phase winding operable to produce a second winding current.

13. The skate of claim 12, wherein at least one of the first and second phase windings is electrically connected with an output jack.

14. The skate of claim 12, wherein the second phase winding is electrically connected with a lighting element.

15. The skate of claim 14, wherein the lighting element comprises a plurality of LEDs secured to the exterior of the boot.

16. The skate of claim 11, comprising an engagement lever operably connected to and displaceable with the shaft, said lever being movable to an engaged position in which the shaft communicates with the wheel, and a disengaged position in which the shaft is positioned out of communication with the wheel.

17. The skate of claim 16, wherein said lever is moveable to the engaged position to move the shaft into frictional engagement with the wheel and is moveable to the disengaged position to move the shaft out of frictional engagement with the wheel.

18. The skate of claim 11, wherein the charging base comprises a receptacle adapted to receive one or more of the rechargeable batteries.

19. The skate of claim 18, wherein the generator comprising a rectifier connected with the receptacle and the stepper motor to supply DC power to the receptacle.

20. The skate of claim 11, comprising an electrical terminal in communication with the receptacle for supplying electrical power to an accessory.

21. The skate of claim 20, comprising a rectifier connected with the electrical terminal to supply DC power to the electrical terminal.